Survey of Venous thromboembolism incidence in Mental Health Services for Older People inpatient units

Project Lead

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(under supervision of Prof Joe Reilly)

The Compliance Rating for this reports is:	
Red (1-49%)	☐
Amber (50-69%)	☐
Green (70-100%)	☐

Background

Venous thromboembolism, or VTE, is a collective term used to describe deep venous thrombosis (DVT) and pulmonary embolism (PE). Current failure to adequately screen and prevent VTE is believed to cause between 25000 and 32000 potentially avoidable deaths annually in the United Kingdom[1], which is more than the combined total of deaths from breast cancer, AIDS and road traffic accidents[1]. Inconsistent use of prophylactic measures further contributes to the incidence of this condition[7]. Risk factors for VTE include immobility; age over 60 years; active cancer or cancer treatment; dehydration; known thrombophilias; obesity; significant medical comorbidities; personal history of, or first degree relative with, a history of VTE; use of hormone replacement therapy or the oral contraceptive pill; and pregnancy[8].

VTE is a common preventable condition in patients admitted to medical and surgical wards; the incidence of hospital-acquired VTE for general medical patients is approximately 2% for patients at moderate to high risk and <1% for patients at low risk[12]. Autopsy data overestimate incidence of PE by detecting asymptomatic cases, whereas reliance on clinical diagnosis underestimates incidence risk[13].

To put the incidence of VTE in context with other important conditions, the incidence of VTE per 100 000 person years by sex and age with 95% confidence intervals is 300 whilst the Incidence per 100 000 person years of CVA and AMI is 200 and 600 respectively.

Less is known about the incidence of VTE in people using mental health services. A clear association of VTE with antipsychotic use has been established[2]. This increased risk is low in absolute terms (4 additional cases per 10000 exposed patients per year), but appears to be more marked among new users of atypical antipsychotics[10]. Reviews of the available data for aripiprazole, clozapine and olanzapine have led to warnings about VTE being added to their Summaries of Product Characteristics (SPCs) [9]. The pathogenesis is most likely multifactorial but several biological mechanisms have been proposed including increased levels of antiphospholipid antibodies, enhanced platelet aggregation, hyperhomocysteinemia and hyperprolactinemia. Underlying risk factors present in psychiatric patients may

further contribute to the etiopathogenesis of VTE[2]. Psychiatric patients often present with the established risk factors for VTE, for example poor physical health, obesity and dehydration. Additionally, immobilisation due to physical restraint and pharmacotherapy with benzodiazepines and antipsychotics may put mental health service users at a higher risk of VTE.

Elderly patients are among the most common recipients of antipsychotics and the incidence of VTE is higher in over 65's[3]. One multicentre cross-sectional study conducted in subacute care departments, analogous to Mental Health Services for Older People (MHSOP) inpatient wards, detected DVT in 16% of patients using systematic ultrasound examination[5]. One NHS Trust providing mental health care investigated mortality and morbidity linked to VTE in the previous year and found 5 deaths primarily due to VTE (2 in MHSOP, 2 in substance misuse services and 1 in general adult MH services)[6]. However, rigorous scientific data such as randomised controlled trials for risk/benefit ratio and efficacy of prophylactic treatment is lacking in this patient group[3]. The benefit of thromboprophylactic treatment needs to be weighed up against the risks of adverse effects such as bleeding and drug interactions, especially in older people.

As there is very little good quality evidence on the incidence of VTE in psychiatric inpatients, we conducted, in addition to an awareness survey, an incidence survey of VTE on inpatient units in MHSOP in Tees, Esk and Wear Valleys NHS Foundation Trust.

Aims

We aimed to establish the incidence of VTE in TEWV MHSOP inpatient wards, but also wanted to investigate current practice in terms of assessment of risk of VTE and treatment given.

Criteria and Standards

Of the **Essential Standards of Quality and Safety** this project relates to:

1. Care and welfare of people who use services
2. Assessing and monitoring the quality of service provision

Methodology

We searched patient data from the electronic patient record system used in TEWV namely Paris. The Paris electronic patient record was first implemented in 2008 and all records of MHSOP in TEWV have been on Paris since then. In order to assess sufficient data, we searched the data of all patients discharged from MHSOP inpatient wards throughout TEWV over a 24 month period (July 2009 to June 2011). This included all discharges from MHSOP inpatient units in North Durham, South

Durham, North Tees, South Tees and North Yorkshire during this 2 year period. In all we searched the data of 1495 patient discharges.

The Paris system has the capacity to create a summary of an individual patient's casenotes. We were therefore able to do a word search of the "Casenote Summary", to search every patient's record throughout their admission. To identify all VTE's, we performed our search in 2 stages.

Stage 1 – To identify all confirmed VTE's and PE's, we performed keyword searches using: VTE, DVT, PE, pulm, embol and thromb.

Stage 2 – Having identified a VTE or PE, we then recorded the following information for each patient with VTE:

1. Age
2. Gender
3. Psychiatric diagnosis
4. Whether a DVT or PE was diagnosed
5. Treatment given
6. Whether a VTE risk assessment was completed on admission
7. Outcome following treatment
8. All comorbidities
9. Antipsychotic exposure

Data Analysis/Results

By searching the 1495 patient records, we found 17 confirmed cases of VTE. Of the 17 cases, 12 (72%) were DVT's and 5 (28%) PE's, so the incidence can be estimated as 1.14 VTE cases per patient 100 discharges.

The mean age of the patients diagnosed with VTE was 78 years and the patient's ages ranged from 60 to 89 years. There were more females with VTE's, as would be expected, with the Male to Female ratio 29% to 71%.

We found that the most common diagnosis of patients with VTE was depression, with vascular dementia the second most common diagnosis. 76% of patients were prescribed antipsychotics at the time of suffering a VTE, whilst the most commonly prescribed antipsychotic was olanzapine (60%).

Examining comorbidities revealed that apart from age, most patients did not have clear risk factors for VTE. However malignancy, chronic physical disease and immobility were present for a number of patients.

In terms of VTE risk assessment and preventative measures (thromboprophylaxis and mobilisation), there were very little to be found with no record of VTE patients having received a VTE risk or thromboprophylaxis. Only 29% of patient's records had clear evidence that mobilisation was encouraged.

Finally, we also examined the treatment given following diagnosis of VTE and the outcome resulting from that. We found that patients were treated appropriately with LMWH and warfarin, however the use of compression stockings were limited with only 5 of the 12 patients diagnosed with DVT receiving a compression stocking. In terms of outcome, 35% of patients (all diagnosed with PE) were transferred to an acute setting and there were no deaths recorded from the 17 VTE cases.

Discussion

The incidence of VTE in our survey was comparable to incidence data from acute trusts which emphasises the importance of increased awareness of VTE amongst staff working in MHSOP. Despite the significant incidence, no patients had a recorded VTE risk assessment. This should be addressed by the use of a VTE assessment tool as recommended by the DOH. Patients were appropriately treated with LMWH and warfarin, but the use of compression stockings was more limited. There was also limited evidence of mobilisation being considered as part of VTE management (29%). These 2 issues could be addressed with better training of MHSOP clinical staff via mandatory training and e-learning tools. In our survey the majority of the patients diagnosed with VTE were taking antipsychotics at the time. Although no clear conclusions can be made from this finding, it does emphasise the need for more conclusive evidence on the role of antipsychotics in the pathogenesis of VTE.

Looking at the limitations of our study, Paris only has a limited search capacity and we may not have accounted for all VTE as not all case records may have been recorded on Paris, however an underestimation of VTE incidence should not negate the conclusions of our survey. We did not examine critical incident data, so patients dying on inpatient units would not be included in our data. Similarly mortality data from patients who may have died after being transferred to an acute setting were not examined.

Recommendations

1. Increased awareness of the importance of VTE risk factors, screening and appropriate treatment, especially the use of compression stockings and mobilisation, is needed. This should be addressed with better training of MHSOP clinical staff via mandatory training and e-learning tools. An e-learning tool is already being considered for future use in the trust (see http://www.e-vte.org.uk/ for e-learning tool)
2. The use of the Department of Health VTE assessment tool will be piloted on one MHSOP inpatient ward with a view to being used for all MHSOP inpatients.
3. Further investigation into a possible link between antipsychotic prescribing and VTE risk is needed.

4. The results of this survey will be distributed to Clinical Directors and service managers in TEWV

References

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Clinical Audit Action Plan

TITLE OF CLINICAL AUDIT:	Survey of Venous thromboembolism incidence in Mental Health Services for Older People inpatient units	**PROJECT LEAD:**	Martin van Zyl, Senior Registrar, Old Age Psychiatry (under supervision of Prof Joe Reilly)
AUDIT NUMBER:		**AUDIT DATE:**	June 2012

ACTION REQUIRED	**PERSON(S) RESPONSIBLE FOR ACTION**	**DATE ACTION TO BE COMPLETED BY**	**STATUS OF ACTION** (Indicate the status of the action by either using the words *complete*, *ongoing*, *behind schedule* or traffic light system. Enter the date with the status)
1. Increased awareness of the importance of VTE risk factors, screening and appropriate treatment, especially the use of compression stockings and mobilisation, is needed. This should be addressed with better training of MHSOP clinical staff via mandatory training and e-learning tools. An e-learning tool is already being considered for future use in the trust (see http://www.e-vte.org.uk/ for e-learning tool)	TBC		

2. The use of the Department of Health VTE assessment tool will be piloted on one MHSOP inpatient ward with a view to being used for all MHSOP inpatients.	Corrie Burton Lesley Chapman Martin van Zyl		
3. The results of this survey will be distributed to Clinical Directors and service managers in TEWV	Martin van Zyl		

PLAN AGREED BY:		**DATE**:	